COMPOUND STRUCTURE OF BALL SPLINE AND BALL SCREW

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Abstract of JP2113152
PURPOSE:To minify deformation of a screw shaft due to an extreme end load by combining an outer cylinder engaged with a spline shaft and a screw shaft threadedly engaged with a ball nut, by means of combining members penetrating through the slit formed lengthwise on the spline shaft. CONSTITUTION:A plurality of balls 50 are between the thread grooves 11a of a screw shaft 11, combining members 66-66 are fitted to the screw shaft 11 screwed in a ball nut 51, and the outer ends are fitted to an outer cylinder 24 penetrating through respectively the slits 40 of a spline shaft 23. By rotating a servo motor 62 only, the screw shaft 11 is moved within the spline shaft 23 (without rotation) projecting or retreating (straight line movement in the arrow mark B direction). Nextly by rotating a servo motor 35 only, the screw shaft 11 is moved, projecting or retreating, with rotation within the spline shaft 23. Further by simultaneously rotating the servo motors 35, 62, the screw shaft 11 is only rotated without projecting or retreating within the spline shaft 23. Thus, deformation of the screw shaft especially against the extreme end load is minified. Further, the total length against stroke can be shortened.